

Introduction to data processing and image recognition using Python and TensorFlow

Workshop activity sessions 18, 19, and 20 April/May 2021

Duration: 2 hours 15 minutes (3 x 45 hours)

Activity sessions overview

The aim of this session is to further investigate TensorFlow with Python in order to undertake a simple linear regression with Keras.

Part 1: Session 18

Access the provided Python script `linear_regression_1.py`. Run this script and understand its operation. Note the information that is printed to the standard output, the format of the printed information, and the meaning of the different parts.

Part 2: Session 19

Create a dataset with 100 values that vary randomly ± 1.0 around the straight line:

$$y = 25x + 5.0$$

Run the Python script varying the number of epochs between 1 and 1000.

Part 3: Session 20

Modify the Python script from part 1 to save create a log text file (`log.txt`) to save information during the script run.

Part 4: Session review

Ensure that all Python code developed is suitably formatted and commented. Where appropriate, follow the Python [PEP 8 -- Style Guide for Python Code](https://www.python.org/dev/peps/pep-0008/) (<https://www.python.org/dev/peps/pep-0008/>). Consider also replacing NumPy statements with TensorFlow statements so that NumPy is not required.